

82704

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re U.S. Patent Application)
Applicant: Karl-Heinz SCHUSTER)
Serial No.: Not Yet Assigned)
Filed: Herewith)
For: **PROJECTION LENS, IN**)
PARTICULAR FOR)
MICROLITHOGRAPHY)

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

This is a Preliminary Amendment for entry in the above-identified application.

In the Specification:

Please replace the enclosed specification with the enclosed Substitute Specification.

Applicant avers that no new matter has been added.

In the Claims:

Please amend the claims as follows:

4. (amended) Projection lens according to claim 1, wherein the manipulation chamber is located between the lens arrangement and the image plane.
5. (amended) Projection lens according to claim 1, wherein the manipulation chamber is located in the lens arrangement.

11. (amended) Projection lens according to claim 8, wherein the first optical element and a second optical element of the sixth optical group enclose a gas chamber, wherein it holds for the radius of curvature R_3 of the surface of the second optical element, which faces the first lens, that:

12. (amended) Projection lens according to claim 11, wherein it holds for the radius of curvature R3 that: $|R3| > 5000 \text{ mm}$.

13. (amended) Projection lens according to claim 11, wherein it holds for the radius of curvature R4 of the further surface of the second optical element that:

15. (amended) Projection lens according to claim 8, wherein a lens with an aspheric surface is provided in the first lens cluster.

17. (amended) Projection lens according to claim 15, wherein the aspheric surface is arranged on the first curved surface of the aspheric lens.

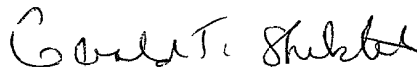
25. (amended) System for projection lens according to claim 19, wherein in addition to the manipulation chamber a further at least approximately plane-parallel manipulable gas interspace is provided, for the purpose of removing field curvature, on a substrate, which is to be exposed, in the sixth optical group.

26. (amended) System for projection lens according to claim 20, wherein in addition to the manipulation chamber a further at least approximately plane-parallel manipulable gas interspace is provided, for the purpose of removing field curvature, on a substrate, which is to be exposed, in a sixth optical group.

27. (amended) System for projection lens according to claim 21, wherein in addition to the manipulation chamber a further at least approximately plane-parallel manipulable gas interspace is provided, for the purpose of removing field curvature, on a substrate, which is to be exposed, in a sixth optical group.
34. (amended) Method according to claim 29, wherein when the projection lens is being tuned a filling gas is introduced which is subsequently exchanged by the operator for a gas mixture.
36. (amended) Method for producing microstructured components, in the case of which a substrate provided with a light-sensitive layer is exposed by ultraviolet light by means of a mask and a projection exposure machine according to claim 26 and is structured after the development of the light-sensitive layer in accordance with a pattern included on the mask.

Respectfully submitted,

WELSH & KATZ, LTD.



By
Gerald T. Shekleton
Registration No. 27,466

Dated: May 2, 2001

Welsh & Katz, Ltd.
120 South Riverside Plaza
22nd Floor
Chicago, Illinois 60606
Telephone: 312/655-1500

VERSION WITH MARKINGS TO SHOW CHANGES MADE

4. (amended) Projection lens according to claim 1[, 2 or 3], wherein the manipulation chamber is located between the lens arrangement and the image plane.
5. (amended) Projection lens according to claim 1[, 2 or 3], wherein the manipulation chamber is located in the lens arrangement.
11. (amended) Projection lens according to claim 8[, 9 or 10], wherein the first optical element and a second optical element of the sixth optical group enclose a gas chamber, wherein it holds for the radius of curvature R3 of the surface of the second optical element, which faces the first lens, that:
 $|R3| > 3000 \text{ mm}.$
12. (amended) Projection lens according to claim 11[or 12], wherein it holds for the radius of curvature R3 that: $|R3| > 5000 \text{ mm}.$
13. (amended) Projection lens according to claim 11[or 12], wherein it holds for the radius of curvature R4 of the further surface of the second optical element that:
 $|R4| > 3000 \text{ mm},$ preferably $|R4| > 5000 \text{ mm}.$
15. (amended) Projection lens according to [one of the] claim[s] 8 [1 to , wherein a lens] with an aspheric surface is provided in the first lens cluster [(LG1)].
17. (amended) Projection lens according to claim 15 [or 16], wherein the aspheric surface is arranged on the first curved surface of the aspheric lens.

25. (amended) System for projection lens according to claim 19, wherein in addition to the manipulation chamber a further at least approximately plane-parallel manipulable gas interspace is provided, for the purpose of removing field curvature, on a substrate, which is to be exposed, in the sixth optical group [(LG6)].
26. (amended) System for projection lens according to claim 20, wherein in addition to the manipulation chamber a further at least approximately plane-parallel manipulable gas interspace is provided, for the purpose of removing field curvature, on a [the] substrate, which is to be exposed, in a sixth optical group [(LG6)].
27. (amended) System for projection lens according to claim 21, wherein in addition to the manipulation chamber a further at least approximately plane-parallel manipulable gas interspace is provided, for the purpose of removing field curvature, on a [the] substrate, which is to be exposed, in a sixth optical group [(LG6)].
34. (amended) Method according to claim[s] 29 [and 33], wherein when the projection lens is being tuned a filling gas is introduced which is subsequently exchanged by the operator for a gas mixture.
36. (amended) Method for producing microstructured components, in the case of which a substrate provided with a light-sensitive layer is exposed by ultraviolet light by means of a mask and a projection exposure machine according to claim 26 and[, if appropriate,] is structured after the development of the light-sensitive layer in accordance with a pattern included on the mask.